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The Role of Schools in Meeting Community Needs During Bioterrorism

BRADLEY D. STEIN, TERRI L. TANIELIAN, MARY E. VAIANA, HILARY J. RHODES, and M. AUDREY BURNAM

THE TERRORIST ATTACKS of September 11, 2001, and the subsequent anthrax attacks have heightened national concern about terrorist attacks involving a biological weapon.[1] Small amounts of a biological substance can kill or seriously injure large numbers of people, but even when actual casualties are relatively few, these weapons can have serious psychological, economic, and political consequences.[1] Organized terrorist groups such as al Qaeda have tried to obtain or develop biological weapons and have publicly proclaimed that they consider obtaining them to be a religious duty.[2]

Recognizing the threat posed by bioterrorism, the federal government has allocated more than $4 billion to states and communities to improve the public health response to a bioterror attack.[1] But one component of preparedness that has received relatively little attention is the need to improve communities' abilities to meet the emotional and behavioral challenges that would result from such an attack. Much of this preparedness will be guided by community response plans that have been developed for other large-scale traumatic events such as natural disasters, technology-related accidents such as airplane crashes or explosions, violence on or near school campuses, and more traditional terrorist attacks such as bombings.

As Table 1 illustrates, however, bioterrorism may pose some unique challenges. A bioterrorist event differs in important ways from the crisis events for which communities are typically prepared. The level of fear and anxiety in the event of a bioterror attack may be increased by the novelty of biological weapons, the uncertainty in determining whether an attack has occurred and identifying the boundaries and scope of that attack, the possibility that oneself or one's family may unknowingly have been a victim of the attack, and the possibility of contagion.[3,4] In most other crises, it is apparent to the public when the immediate danger has passed, or public officials can provide such reassurance with a high level of certainty (e.g., in a chemical attack). However, as became clear in the anthrax attacks, the "end" of a biological attack may become apparent only after a period of time during which no new cases are documented. For some individuals, the presence of any remaining biological agent, whether "live" or not, may continue to cause heightened concern and psychological distress, as is the case for the workers from the Brentwood Road U.S. Postal Facility.[5]

Terrorist events involving chemical, radiologic, or nuclear weapons are similar to bioterrorism in their capacity to inflict extensive casualties, but attacks with these weapons have an immediate effect, the site and geographic scope of the attack can be readily identified, and the distribution of individuals directly affected is relatively concentrated. Compared with bioterrorism, such attacks have more in common with other crises (e.g., natural disasters, campus shootings) that communities face.

The differences suggested in Table 1 mean that efforts to meet the emotional and behavioral challenges posed by bioterrorism must involve new strategies and extend beyond traditional mental health professionals and clinical types of interventions. Many others in the community who support the public in times of stress—including local health care workers, religious organizations, and employers—will need to be involved. Reflecting this need, recently introduced congressional legislation is intended to provide federal coordination and leadership as well as resources to enhance the nation's response to the psychological consequences of terrorism. The proposed legislation places special emphasis on including nontraditional providers of emotional and psychological support.[6]

Schools are likely to play a particularly critical role in meeting the emotional and behavioral needs of children and their families during and after a bioterror event. On

Bradley D. Stein, MD, PhD, Terri L. Tanielian, MA, Mary E. Vaiana, PhD, Hilary J. Rhodes, MSc, and M. Audrey Burnam, PhD, are with RAND, Santa Monica, California. Dr. Stein is also with the Keck School of Medicine, Department of Psychiatry, University of Southern California, and the Terrorism and Disaster Branch, National Child Traumatic Stress Network.

TABLE 1. DIFFERENCES BETWEEN BIOTERRORISM AND MORE COMMON SCHOOL CRISES*

	Bioterrorism	*More common crises*
Speed at which event results in effect	Prolonged	Immediate
Site of event	Unknown	Specific
Knowledge of event's duration	Unknown	Well understood
Knowledge of event's boundaries/scope	Unknown	Well understood
Familiarity with type of event	Low	High
Scientifically complicated	High	Low
Distribution of affected people	Geographically dispersed	Concentrated area

*More common school crises include natural disasters, on-campus violence, and intruder events.

any given day, almost 60 million people, more than one out of every five Americans, participate in education in a K–12 school.[7,8] However, the reach of schools extends far beyond individuals on school campuses. Parents and others responsible for children often look to schools to keep children safe and seek direction about how to best support them in times of crisis.

In this article, we examine the potential role of schools and school districts in meeting community needs during a bioterrorism attack. Others have written about schools' role in meeting the needs of children after terrorism and other forms of mass violence.[9–11] These documents provide a useful summary of current knowledge regarding the acute and long-term psychological effects of such events on children, and they present current consensus recommendations for preparing for and responding to such events. We focus here specifically on the challenges posed by bioterrorism, particularly with respect to those areas in which the differences inherent in a bioterrorism event may create challenges unlike those of other crises.

In our discussion, we draw on research describing school responses to previous disasters and consider some of the specific challenges and emotional and behavioral issues associated with bioterrorism. We discuss how existing strategies and tools might be improved, and suggest that schools and school districts become active and full partners in communitywide public health responses to any event involving a biological weapon. Rather than providing definite guidance, we seek to heighten awareness of these issues and stimulate discussion and further work. As we discuss below, the usefulness and credibility of any guidance will be enhanced to the extent that it can be founded on rigorous empirical research.

THE HISTORICAL ROLE OF SCHOOLS IN RESPONDING TO TERRORISM

We can learn a good deal about the potential role of schools in responding to a bioterrorist event by examining how school districts have responded during other crises. Following the bombing of the Murrah Federal Building in Oklahoma City, the Oklahoma City Public School District screened thousands of students and provided psychological support services to many students and school staff.[12–14] In the aftermath of the September 11, 2001, attacks on the World Trade Center and the Pentagon, schools were also active in providing services to students. In New York City, more than half of the students who received counseling in the months following September 11, 2001, received it through the schools.[15]

Interventions such as psychological first aid and crisis counseling are common school responses designed to promote the psychological recovery of students and staff after a range of traumatic events, including terrorism.[16] However, the research on what works in school-based crisis plans, and, more broadly, what are effective psychological interventions after mass violence, is in its infancy.[16,17] There is a dearth of empirical evidence on the effectiveness of the strategies and tools traditionally used following traumatic events,[17] and only two school-based interventions for traumatized children have been shown to be effective in randomized trials.[18,19] A recent review of school-based mental health interventions following school-related violent events found no articles describing evaluations of any of these psychological interventions.[20] And while mental health professionals working in schools now constitute the largest cadre of primary providers of mental health services for children,[21] it is unlikely that most school districts will have sufficient trained personnel to provide psychological interventions to large numbers of students.

Schools have assumed an expanded role in meeting the emotional, behavioral, and psychological needs of large numbers of their students and families after terrorist events. For example, during and after the sniper shootings in the Washington, DC, area, schools actively disseminated information about risks and protective measures and provided support and psychoeducational materials for children and families,[22–24] often while si-

multaneously maintaining a normal school environment for children and providing reassurance. When the Substance Abuse and Mental Health Services Administration (SAMHSA) convened the commissioners from the three affected states, the agenda explicitly included the role of schools in providing reassurance to the community both during and after the event (personal communication with Seth Hassett, Disaster Response, CMHS, SAMHSA June 9, 2003).

The expanded role of schools includes responding to events that do not target schools directly and where the direct victims of the attack are geographically distant. In a national survey conducted in November 2001, nearly two-thirds of parents reported that their children's schools had been actively engaged in helping children and families cope with the psychological effects of the September 11 attacks.[25] In the face of an event that affected students across the country, many parents reported that schools provided counseling services for children. Even more parents reported that their children's schools provided information and materials to guide parents in helping their children cope or conducted special school assemblies and classroom programs. Such educational and supportive activities allow schools to assist more students and families than can be served through direct crisis counseling and psychological first aid and may be more appropriate for many individuals who have not been direct victims of a terrorist event.[26]

IMPROVING SCHOOLS' RESPONSE TO BIOTERRORISM

In order to meet the psychological and emotional challenges posed by terrorism and disasters, schools must first meet the physical and safety needs of the children and school staff. A recent consensus workshop held by the National Institute of Mental Health identified meeting basic needs as a critical component of early interventions following a traumatic event. These needs included assessing the environment for ongoing threats and communicating with families about the efforts being made to ensure children's survival, safety, and security.[17]

Schools strive to meet students' needs for safety and security on a daily basis. Many schools have crisis plans that are the foundation of efforts to meet students' needs in the face of a range of crises, such as natural disasters, on-campus violence, and intruder events. However, because bioterrorism presents new challenges, schools' planning and preparations must evolve to address the survival, safety, and security issues raised by this new threat. Not all schools will have the resources to meet these challenges; roles and responsibilities within school districts and communities may not be clear enough that teachers and principals will know what to do. But as in other crises,[27] a successful response to a bioterrorist attack is much more likely if school personnel know what to do and when to do it.

Schools also face new challenges in their efforts to provide emotional and psychological support to children and families in the event of a bioterror attack. For example, many schools have on hand or can easily obtain from multiple websites psychoeducational material about trauma and children prepared by experts that can be sent home in the event of a crisis so that parents can help their children better cope with traumatic events. However, existing materials may be insufficient, or potentially even inappropriate, for meeting the psychological challenges posed by bioterrorism. Available materials often cover a broad range of disasters and traumatic events[28,29] or have been developed for intentional events such as the terrorist attacks of September 11, 2001.[30,31]

In all of these crises, the immediate threat has usually been resolved by the time that schools are communicating with parents, and parents and schools are helping children to cope with the aftermath of the event. In contrast, in a bioterror event, the period of perceived threat is likely to extend over weeks or potentially months, even in the case of a noncontagious agent such as anthrax. To address the kinds of differences that exist between the various types of events, the National Advisory Committee on Children and Terrorism recommended that guidance for parents, teachers, and other caregivers for helping children cope with terrorism must be *situation-specific* as well as clear and concise.[11]

It is not difficult to find examples of school activities designed to support children that may be inappropriate in the context of bioterrorism. For example, school crisis interventions and psychological first aid often rely on bringing groups of students together with a school counselor or mental health professional. This may not be possible in a bioterrorism event. Bringing together groups of students may very well be contraindicated in the event of an attack with a contagious agent. Even if gathering students is not contraindicated, parents may still perceive such meetings as increasing the risk to their child and prevent their child from participating.

The unique threat posed by bioterrorism mandates that school safety plans and crisis response plans be reexamined. Is the line of command during a public health emergency clear? Are the communication channels sufficiently extensive and robust to facilitate interaction within schools and across communities during an extended public health crisis? Are current strategies appropriate for meeting the psychological challenges posed by bioterrorism? Some plans and materials may need to be refined; other components will need to be completely redeveloped to address the challenges posed by greater levels of uncertainty, the potential of contagion, and longer duration of threat.

In many cases, a good starting point for reassessment is to evaluate the effect of traditional tools in situations that may be similar to bioterrorism. For example, infectious disease outbreaks provide an opportunity to examine how schools address student and family concerns in an event in which there is great uncertainty regarding contagion, with accompanying elevation in level and duration of risk. Examining the effectiveness of different school strategies for communicating with students and parents during events such as the SARS outbreaks, the anthrax attacks of 2001, or West Nile virus outbreaks would facilitate development of an evidence base regarding best practices. For example, parents of children in one school that responded to a hoax anthrax attack were upset that they were not adequately informed about the event, while another school discovered that they were unable to reach parents quickly enough.[32,33]

More common events, such as an outbreak of bacterial meningitis, provide occasions to address many of the same issues. The Washington, DC, sniper attacks and the outbreak of SARS in Toronto also offer opportunities to assess the effectiveness of school strategies for implementing increased safety procedures and maintaining communication with parents over an extended period.

Much can potentially be learned from observing the natural variation in schools' response. In the absence of clear recommendations, school districts used the limited information available to make different choices about how to protect students and staff as well as what and how to communicate to parents, students, and staff. For example, during the anthrax attacks, some schools began to sort mail in isolated rooms. While some made no operational changes, others excluded student aides from opening mail, opened mail after students had been dismissed for the day, or opened all mail outside the school building.[34,35] Although many schools made no dramatic changes in response to West Nile virus, concerns about possible exposure led other schools to close playgrounds and sports fields and have janitors immediately clear all puddles.[36–38]

Schools also used a variety of approaches to protect students and reassure parents during the Washington, DC, sniper attacks. These approaches included frequent conference calls with law enforcement and government officials, emailing parents regarding decisions to keep schools open, keeping window blinds drawn or windows covered, canceling outdoor recess and activities, and having school staff form a human corridor on the sidewalk leading to the school entrance for students to pass through as they walked from the road to the school building.[39–41]

Little is known about how these decisions affect children, families, and school staff. Do such actions decrease fear and anxiety among children and families? Might they increase fear and anxiety in some individuals? Why do schools decide on one action versus another? Are some actions more effective in helping children and families cope with fear and anxiety? The naturally existing variation in schools' responses to such events provides a rare opportunity to compare the effects of strategies, allowing us to face future events more informed about how schools can most effectively respond.

It will be challenging to evaluate the effect of schools' actions in situations such as outbreaks of emerging infectious diseases or the sniper attacks. The priority at the time of the event must be to meet the needs of students, families, and staff rather than to evaluate those efforts. Events often develop so quickly that it can be difficult for researchers to be in the field in time. There is seldom a comparison group so that evaluators can compare the results of one action against another. These challenges may limit the information that can be obtained, and that information may not be completely applicable to a bioterrorism scenario. However, such evaluations could constitute a critical first step in constructing an evidence base to inform school strategies.

Table 2 illustrates the kinds of questions that might be useful in examining how schools have responded to the kinds of situations mentioned above. This information could be gathered using a combination of qualitative and quantitative data collection approaches. While not specific to bioterrorism or a public health emergency, this information would allow schools to identify gaps and unmet needs in how they plan for and respond to crises more broadly, and would serve as a foundation for evidence-based efforts to improve schools' bioterrorism response plans.

THE KEY ROLE OF SCHOOLS IN A COMMUNITYWIDE BIOTERRORISM RESPONSE

As elaborated in the *Schools and Terrorism* supplement to the *Report of the National Advisory Committee on Children and Terrorism*, schools have a special responsibility for the children in their care; they are responsible for children's safety and their safe return to their families.[10] However, schools will be deciding how to meet these responsibilities within the larger context of a community response. Decisions such as whether to keep the school open or to close it should not and cannot be made by schools in isolation. Public health, law enforcement, emergency management, homeland security, and other officials will be making decisions about protecting the community. School decision-making should be part of this joint community decision-making process, especially since effective school planning and communication must rely on having up-to-date information about what other organizations in the community are doing.

TABLE 2. POTENTIAL RESEARCH QUESTIONS TO EXAMINE SCHOOLS' CAPABILITIES TO MEET EMOTIONAL AND BEHAVIORAL CHALLENGES OF A BIOTERROR EVENT

Main questions	*Related questions*
What are schools doing to prepare for traumatic events?	• Whose role is it to create school policies and guidance for crisis response? • Are these individuals informed about the broad array of crises that schools may face (including bioterrorism)? • Do school policies and guidance for crisis response address a full range of possible events, including bioterrorism or other public health emergencies? • Are school policies and guidance event-specific? • What parts of the policies and guidance were useful in responding to the event? What parts needed to be improved?
What are schools doing to respond to traumatic events?	• What types of information do schools routinely provide to families? • How quickly and/or frequently do schools provide information to students? Staff? Parents? • Is information about psychological issues and coping included? • Do schools have communication channels for talking about sensitive issues with parents and students? • How have schools responded to prolonged events? • What kinds of support do schools provide for their staff?
How did schools decide what to do?	• How were decisions about the schools' actions made? • What information did schools use to make those decisions? • Who provided that information? • To what extent did decisions reflect an existing plan? • Which decisions needed to be made at the time of the event?
What do parents, children, and others in the community need during times of public health crises? Which materials were useful in alleviating concern, providing information, and promoting positive compliance with policies?	• What types of information do parents need during emergencies? • Do the communications and programs meet their needs? • What will children need? • What will the public health community be doing to meet these needs? • Do the receivers of the information believe the materials are useful? Informative? • Does the material provide help in making decisions? • How did the material affect behavior?
Were the schools' actions effective in reducing psychological distress (anxiety)? If so, which ones?	• What was most effective in alleviating students' anxiety? • In alleviating parents' anxiety? • In alleviating the anxiety of school staff?
Were any specific intervention techniques employed? If so, which ones?	• How did parents, children, and staff respond to intervention techniques? • What were the criticisms? • What worked well, what didn't?

Coordinating communication and response efforts across multiple organizations is quite complex, particularly during a crisis, and no single template for coordination will work across all communities. Schools must be an active partner in communitywide public health bioterrorism planning so that they are able to provide timely information to parents and make informed decisions about how best to meet children's needs in any bioterrorism response.

School safety plans, encouraged by the U.S. Department of Education[42] and mandated in many states, currently form the architecture of a school's crisis planning. It is common for well-developed school safety plans to explicitly address integration with other community partners such as law enforcement and mental health.[16,43] These plans are also the natural place to detail strategies and relationships with others in the event of a bioterror attack. However, few plans address the coordination with public health and emergency management that would be needed during a public health emergency such as a bioterror event or emerging infectious disease outbreak.[10] Such coordination is critical, as it is hard to envision any effective communitywide bioterrorism response plan that does not include schools.

Schools are also likely to play a major role in communicating with parents, not only during a bioterrorism event, but also before and after. Since September 11, parents want to know not only that their children are safe, but also how schools are planning to keep their children safe. To provide this information, schools should involve parents in all aspects of bioterrorism planning and make them aware of the details of such plans before they are implemented. In addition, because of the ongoing threat inherent in a biological attack, schools need to consider how to best maintain a dialogue with parents about children's safety during an event, and parents can provide critical feedback on the these plans. For example, in a school in which there was concern about possible exposure to monkey pox, school administrators decided to use the school's website to disseminate information after telephoning parents.[44] Parents in different school districts may also respond quite differently to similar plans. Shelter-in-place strategies, which are discussed in more detail below, are one such example. While a number of school districts have integrated such strategies into response plans with support from parents in the community,[45] in other districts, such as the Washington, DC, public schools, there has been substantial outcry from parents about shelter-in-place plans because of the conditions in the schools (personal communication, Shauna Spencer, Project DC, October 22, 2003).

As is clear from these examples, the best way to begin and sustain the dialogue with parents will vary from school to school and district to district. Ultimately, the challenge will be to balance consistency with flexibility across communities and districts. In each community, the satisfaction of parents, as expressed to school administrators, school boards, and local elected officials, will be the key indicator of success.

The importance of these communication and community linkages is particularly pronounced if community response plans involve preventing reunification of children and their families for any period of time, as is the case with shelter-in-place strategies. Shelter-in-place, which requires individuals to remain where they are for several days in the event of a bioterrorist attack, would require schools to shelter students and staff for an extended period. The Department of Homeland Security has recommended that preparing to shelter-in-place should be part of every family's and community's planning,[46] and several large school districts have already announced plans to provide shelter-in-place capabilities.[47] However, developing and implementing such a plan can be quite difficult for schools, creating an entirely new set of demands for school staff and administrators, as well as requiring substantial resources at a time when schools are faced with dwindling resources.

Shelter-in-place strategies present additional logistic, public health, and legal issues that must be considered. For example, recent research has suggested that shelter-in-place may not be a preferred strategy during an attack with a biological agent.[48] What happens if schools attempt to shelter students in place in the event of an attack with a biological weapon, but parents (who may potentially represent a threat of contagion) show up at the school to pick up their child? It may not be obvious when an attack has occurred who is most at risk or when the danger has passed. Schools, parents, health officials, law enforcement, and community leaders must together consider what role shelter-in-place plays in a broader effort to ensure children's safety in the face of great uncertainty about the level, timing, and source of risk.

How can schools become integrated into their community's bioterrorism response plan? First, schools should become part of the emergency management agency planning in their communities. This would allow first responders, hospitals workers, law enforcement, and public health officials to learn about the culture of schools and give them an opportunity to have input into the school's crisis response plans. At the same time, it will allow these community partners to have their own plans enhanced by schools' knowledge of children and families. The culture of first responders and law enforcement may be very different from that of many schools. While in many situations such differences can be quickly overcome, in other situations they may create tensions or problems that could hamper a rapid and effective community response. Working together before a bioterrorism event will allow this wide range of community organizations to address the challenges inherent in planning for and responding to public health emergencies, to identify who will be in charge and how directives will be given in case of an actual bioterrorism event, and to work to solve any potential conflicts before an actual event.

Involving schools in community planning would have additional benefits. Schools have well-established processes for communicating with parents on an ongoing

basis. Government and public health officials could take advantage of these processes to communicate with the public about emergency plans.

A second step in integrating schools with their community's bioterrorism response plan is school participation in emergency management community drills and tabletop exercises, allowing schools to identify areas in which the plans of first responders, law enforcement, or public health conflict with school plans. For example, schools often make vigorous efforts to continue operating normally during any prolonged crisis or, when this is not possible, to return to normal operations as soon as the safety of the students can be assured. Maintaining regular routines is reassuring to children, helping them to better cope with the psychological challenges of such traumatic events. But maintaining a regular routine for students may be impossible if the community's response plan requires the school's cafeteria or gymnasium to be used as an operations center, shelter, isolation facility, or decontamination site. After the immediate threat has passed, parents and students may remain fearful about the possibility of infection for months or even years if large numbers of potentially infected individuals were on the school campus.

During the recent TOPOFF 2 exercises, it became apparent that questions such as these had not been considered in the development of school and community plans.[10] In addition, although many communities have plans to use school facilities, school officials may be unaware of them, or they may be unaware that such plans may be implemented without any input from school officials (Liza Veto, Department of Education, Safe and Drug Free Schools Program, personal communication, October 28, 2003). Schools' participation in training events will allow communities to identify gaps and conflicts in their bioterrorism plans and to refine the role of schools in a communitywide response, ensuring that schools are an active, well-informed, and supportive partner in any bioterrorism response.

Finally and optimally, schools should have a place in their community's *incident command structure*, which has the responsibility for managing and coordinating the community's response to a disaster.[43] The school representative should be someone with knowledge about a broad range of school operations and with immediate access to the district's decision makers. In a crisis, the incident command is where key decisions will rapidly be made in the face of changing information (personal communication, Marleen Wong, Director of Crisis Counseling and Interventions, Los Angeles Unified School District, November 7, 2003). Only by being part of this structure, with the ability to rapidly communicate with school district decision makers, will schools be prepared to modify their response as information about the level of risk changes over time.

Bioterrorism presents schools with a unique set of challenges in meeting the psychological needs of students, families, and staff in an environment characterized by uncertainty and poor information. Historically, schools have responded to communitywide traumatic events only after the threat has passed. But schools have a history of rising to meet the needs of children and families during crises. School officials, public officials, and researchers must now work together to provide schools with the effective tools, information, and support they need to make their unique contribution as part of a communitywide public health response.

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Address reprint requests to:
Bradley D. Stein, MD, PhD
RAND
1700 Main Street
Santa Monica, CA 90407-2138

E-mail: stein@rand.org

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